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SOME OBSERVATIONS ON THE USE OF "ABORTULIN"

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The authors had frequently been asked by both veterinary surgeons and farmers for an opinion on the value of "Abortulin" in the treatment of *Br. abortus* infected cattle, but no reliable experimental evidence appeared to be available until McEwen and Oxspring (1940) showed that two cows known to be excretors of *Br. abortus* in the milk, continued to excrete the organism after treatment.

The following observations have been made on two farms, where the farmer himself had decided to try "Abortulin," and are not the results of an *ad hoc* experiment. Material was, however, received from time to time for examination, which consisted of (*a*) macroscopical examination of membranes, etc., (*b*) microscopical examination of smears, (*c*) cultural examination and (*d*) guinea-pig inoculation (when supplies allowed). Membranes found to show obvious necrosis of the cotyledons with a yellowish or chocolate-coloured exudate, were regarded as being typical of infection with *Brucella abortus*. Smears of foetal stomach contents or membranes were stained with 1 in 20 carbol fuchsin for five minutes with gentle heat then decolourised momentarily with 2 per cent. acetic acid, and counterstained with methylene blue. They were regarded as positive if the typical clumps of red-staining small cocco-bacilli were seen. For cultural examination, the medium used at first was chocolate blood agar with addition of 1 : 100,000 methyl violet. Later, liver agar with 1 : 250,000 gentian violet and 1 : 250,000 malachite green was used. Cultures were confirmed by smears and agglutination test with a known positive serum.

"Abortulin" injections were carried out by veterinary practitioners, the only difference from the recommendation of the makers being that the injections were limited to those animals which gave a positive or suspicious reaction to the agglutination test for *Br. abortus*, whether or not they had previously aborted.

Herd No. 1.

This herd is a commercial dairy herd which was known to have been infected for a considerable number of years. Control had been attempted by blood-testing and segregation and disposal of reactors but, after a period of relative freedom, two abortions had occurred at pasture amongst other animals. Soon afterwards the owner sought our advice on the subject of "Abortulin." It was pointed out that there was no scientific work published which could serve as a basis for any opinion and that even if he tried it he should still continue with ordinary precautionary measures. Eventually he decided to use "Abortulin" and all animals giving a positive or "doubtful" reaction to the agglutination test were injected by the owner's veterinary surgeon. Injections were carried out in each case within a few days of the blood test and details are as follows :—

Date.	Total No. of Reactors and "Suspicious" Animals.	New Reactors Injected.
Oct., 1939	16	16
Dec., 1939	22	6
Feb. 1940	31	9
Mar., 1940	44	None injected, scheme abandoned

It will thus be seen that there was a steady spread of infection through the herd throughout this period. The owner decided to abandon the trial of "Abortulin" in March, 1940.

An analysis of the breeding records of animals inoculated shows up to April 30th, the following results :—

No. of cows inoculated	31
Pregnancies terminated	13
Abortions	10
Premature calvings (live calf but retained placenta)	2
Normal calvings	1
Still in calf	16
Not served	2

None of these still in calf are due to calve before June, 1940, and the majority are not due until July or later.

Herd No. 2.

On the second farm the herd was a small one. There had been three abortions in September, 1939, and a blood test carried out in October showed that these three animals together with three others were positive reactors. Three cows and one young heifer gave no reaction to the test. The owner wished to try "Abortulin" and the six reactors were injected with this agent by the owner's veterinary surgeon in December, 1939. At that time only two of the six were in calf. One of these had previously aborted and was not due to calve until June, 1940. The other had not previously aborted and was due to calve

in March. This cow aborted a month after inoculation and *Br. abortus* was recovered from a guinea-pig inoculated with material from the foetal membranes. A herd test carried out in April, 1940, showed that no other animals had become infected.

Details for both herds of each cow whose pregnancy has terminated are given in Table I.

It is to be noted that material was submitted in five cases from Herd No. 1. *Br. abortus* was definitely isolated in culture in three of these (and confirmed by guinea-pig inoculation in one), while in the remaining two cases though smears were noted with confidence as being positive, we were not successful in isolating the organism.

TABLE I.

Cow No.	Agglutination Test History. Last Negative.	Agglutination Test History. First Positive.	Date of Abortulin Injection.	Calf Due.	Calved or Aborted.	Material Submitted.	Result.	Guinea-pig Inoculation.	Remarks.
1	4.7.39	D. 10.8.39 R. 2.10.39	13.10.39	Aug., 1940	Aborted 15.2.40	Foetus	Stomach smear—positive. Culture—unsuccessful	None inoculated	A very early abortion
74	12.12.39	R. 2.2.40 •	7.2.40	6.3.40	Calved 29.2.40	None	—	—	Placenta retained
79	12.12.39	R. 2.2.40	7.2.40	16.3.40	Calved 18.2.40	Membrane	Cotyledons yellow, necrotic. Smear—positive. Culture—unsuccessful	None inoculated	Placenta retained. Cow died 1.3.40
84	2.10.39	R. 12.12.39	29.12.39	11.6.40	Aborted 4.3.40	None	—	—	
78	2.10.39	R. 12.12.39	29.12.39	Not known	Aborted 14.3.40	Membranes & foetus	Membranes smear—positive. Stomach—smear — positive. Stomach culture—*Br. abortus* isolated	2 g.p.—0·5 c.c. stomach contents s/c. (*a*) died 15 days. Agglutination +1/80. (*b*) Killed 6 weeks. Agglutination + 1/640. Spleen enlarged and slightly nodular. Culture—positive	
85	12.12.39	R. 2.2.40	7.2.40	Not known	Aborted 4.3.40	None	—	—	
76	10.8.39	R. 2.10.39	13.10.39	26.5.40	Aborted 3.1.40	None	—	—	
75	2.10.39	R. 12.12.39	29.12.39	23.6.40	Aborted 7.2.40	None	—	—	
11	12.12.39	R. 2.2.40	7.2.40	11.6.40	Aborted 21.3.40	Foetus & Membranes	F. membranes smear—positive. F. stomach smear—positive. F. stomach culture—*Br. abortus* isolated	None inoculated	
21	12.12.39	R. 2.2.40	7.2.40	23.6.40	Aborted 2.4.40	Membranes	Cotyledons yellow, necrotic. Membranes smear—positive. Membrane culture—*Br. abortus* isolated	None inoculated	
14	12.12.39	R. 2.2.40	7.2.40	Not known	Aborted 5.4.40	None	—	—	
86	2.10.39	R. 2.2.40	7.2.40	Not known	Aborted 15.4.40	None	—	—	Not tested in Dec., 1939
88	14.6.39	D. 4.7.39 R. 10.8.39	13.10.39	14.3.40	Calved normally	None	—	—	
FARM No. 2									
1	Not tested prior to October	R. 13.10.39	20.12.39	Mar., 1940	Aborted 25.1.40	Membranes	Smear — negative. Culture—unsuccessful	1 g.p. inoculated 1·0 c.c. of saline washing s/c. Killed 4 weeks. Agglutination 1/80 Lesions—positive. Culture—positive	

D.—"Doubtful" reaction to agglutination test
R.—Reactor to agglutination test
} The date when first recorded as positive or "doubtful" is noted in each case.

DISCUSSION.

In considering the results in Herd No. 1, it might be argued that re-infection had occurred, following any possible bactericidal effects of the inoculations. It is thought to be far more likely that the treatment had, in fact, failed to influence the course of the original infection. The manufacturers of "Abortulin" state that "normal precautions against re-infection which every farmer takes, should, of course, not be neglected," and it is maintained that such precautions were taken in the case of Herd No. 1. They also claim that the treatment, while destroying *Brucella abortus*, "leaves unharmed the defence forces which the animal has built up in its system." If, therefore, re-infection had occurred following successful chemo-therapeutic treatment, it must have done so in spite of the resistance set up in response to the original infection. It might conceivably also be argued that infection had "reached too advanced a stage for 'Abortulin' to be completely effective." Considering the results from this angle, we find that in only one case out of 13 might "Abortulin" have been completely effective, while in ten other cases in which abortions occurred and in two in which calvings were premature and placentae retained the infection might be considered to have reached too advanced a stage for the treatment to be effective. If this is the case, then it is difficult to see what value the treatment can be considered to have in a heavily infected herd. Moreover, it should be noted that, with two exceptions, the period between the probable date of the original infection (as judged by the agglutination test) and the injection of "Abortulin" was never greater than two months; in most cases this period was probably much shorter than two months. The exceptions are No. 86, which was not tested in December and No. 88, which gave a "doubtful" reaction three months before the date of injection. The latter, curiously enough, was the only one which calved normally.

In the case of Herd No. 2, the fact that no spread of infection (as indicated by the agglutination test) took place between October, 1939 and April, 1940, might appear to support the contention that "Abortulin" had killed out the germ in the infected cows. An equally possible explanation might be that the farmer had been particularly careful to observe the ordinary precautionary measures and had been fortunate in the results so obtained. Particular care was, in fact, taken to isolate the three cows which aborted in September and also the cow which aborted in January.

In a recently issued circular, the manufacturers of "Abortulin" reply to the work of McEwen and Oxspring, previously quoted, stating that "a proportion of cases occur where micro-organisms have collected in some site apart from the blood stream, in the udder, the vagina or elsewhere, which the remedy cannot reach in sufficient concentration to be effective." On the contrary, it is a well-established fact that the udder is frequently affected and plays a very important part in disseminating infection. Doyle (1935) isolated *Br. abortus* from 13 different sites in 26 naturally infected cows and *eight of the sites consisted of lymphoid tissue*; supramammary and iliac glands and the udder were infected in a high proportion of cases; blood was examined in 19 cases but *Br. abortus* could not be demonstrated.

It is impossible to assess accurately the value of any "cure" for contagious abortion by observation of the abortion rate in treated herds. In herds (*e.g.*, Herd No. 1) where no animals have ever aborted before, infection with *Brucella abortus* is followed by a very high abortion rate. In Herd No. 1, the abortion rate was not affected by the injection of "Abortulin." In Herd No. 2, the cow which aborted despite treatment was one which had not previously aborted. In a third herd which has been observed, the absence of further abortions after "Abortulin" treatment caused the farmer, naturally enough, to attribute the results to the treatment. The animals were, however, nearly all older animals and most had aborted previously. A careful examination of the breeding record of each animal showed nothing out of keeping with the natural course of the disease in a herd in which no action is taken beyond the usual precautionary disinfection measures. It is unfortunate that no material was received for examination from this herd, but it may be recorded that of four treated reactor cows which calved normally, two retained the placenta.

Summary

1. Observations on the value of "Abortulin" inoculations in cattle, infected with *Br. abortus*, in two herds, are recorded.

2. In the course of the observations, 14 inoculated cattle terminated their pregnancies. Of these, eleven were abortions, two premature calvings with retained placentae and only one a normal calving.

3. *Br. abortus* infection was definitely confirmed in four out of six cases in which material was received for examination. In the remaining two cases, partial confirmation was obtained.

4. The claims made by the manufacturers of "Abortulin" are discussed in the light of these results.

References

McEwen, A. D. & Oxspring, G. E. (1940). *Vet. Rec.* **52.** 107.

Doyle, T. M. (1935). *J. comp. Path.* **48.** 192.

PREMIUM BULLS: PLEA FOR CONTINUANCE OF GRANTS

A special plea on behalf of the small farmer is contained in the representations put forward by the National Farmers' Union and Chamber of Agriculture for Scotland for the reintroduction of Part II of the Cattle Breeding Scheme relating to Premium Bulls.

The announcement that it had been found necessary to discontinue payment of grant in respect of additional bulls was (it is observed) undoubtedly the cause of a great deal of disappointment among the smaller classes of farmers, to whom the scheme had previously been of invaluable assistance in improving their breeding stocks. It is urged that if the efforts already made in this direction are not to be largely nullified immediate arrangements must be made for the scheme to be extended once again to cover the approval of additional bulls. It is fully recognised that there is need for the strictest economy in public expenditure, but when the far-reaching effects of the withdrawal of the Premium Bull Scheme are taken into account it may well be considered that the apparent gain to the Exchequer at this time will be more than outweighed by the resultant loss in quality of cattle throughout the country.

Stock Feeding Investigations at Auchincruive*

Principal W. G. R. Paterson, of the West of Scotland Agricultural College, has reported the results of some feeding trials with cattle and sheep at Auchincruive. This investigation was begun because of numerous enquiries received from farmers as to the suitability of the rations they were using. In practically every case the rations were much too liberal, especially in the allowance of cake or other concentrates. In a great many cases methods of feeding for beef were wasteful and considerable amounts of feeding stuffs, very much needed for milk, bacon, or egg production, were being entirely wasted.

Experiments I and II give particulars of two feeding trials designed to give information on the amounts of concentrates needed by bullocks.

Cattle Feeding Experiments

Experiment I.—Duration 12 weeks (October, 1935, to January, 1936):—

Aim in view—To ascertain the optimum amount of concentrates to feed to fattening cattle.

Group.	No. of Cattle.	Concentrate Ration.	Live Weight at Start.	Live Weight at Finish.	Weekly Increase.	Dead Weight to Unfasted Live Weight.
		lb.	lb.	lb.	lb.	Per cent.
I	12	6–8½	971	1,188	18·0	56·6
II	12	8–10½	972	1,185	17·7	56·8

The average selling price for Group I.—£23 15s. 6d. and for Group II.—£23 14s. 3d.

Experiment II.—Duration 12 weeks (January to April, 1936):—

Group.	No. of Cattle.	Concentrate Ration.	Live Weight at Start.	Live Weight at Finish.	Weekly Increase.
		lb.	lb.	lb.	lb.
I	12	6–8½	868	1,065	16·4
II	12	5–7½	868	1,064	16·3

Ration

Concentrates—amounts as indicated above with ½ lb. increases fortnightly.

Swedes—54-60-66 lb. by 6 lb. increases monthly.

Hay 10 lb.

Straw and water *ad lib.*

Concentrate Mixture—4 parts crushed oats, 4 parts flaked maize, 2 parts decorticated ground nut cake, 1 part linseed cake.

In Experiment I the ration fed to Group I was evidently ample to bring all the response the cattle were capable of giving under ordinary methods of feeding and anything in excess thereof was just thrown away. This unfortunately amounted, for Group II, to 1½ cwt. additional concentrates per bullock over the 12 week feeding period, and cost about 15s. at current prices.

In Experiment II it should be noted that the cattle were fully 100 lb. lighter on the average than in Experiment I. In view thereof the commencing allowances of concentrates were 6 lb. for Group I and 5 lb. for Group II. There was no difference in rate of progress of the two groups and the lower commencing allowance of 5 lb. proved ample. The cattle in this experiment had been outwintered until well into January and keeping this in view a weekly live weight increase of 16 lb. is exceedingly good.

Further feeding trials are in progress at the present time with the same ration excepting that the commencing allowance of concentrates for cattle that had been outwintered and which weighed almost exactly 8 cwt. when the feeding trial started in the month of February was reduced to 4 lb. So far they have made quite good progress.

The lesson from Experiments I and II would appear to be to the effect that in beef production over-generous feeding of an ordinary ration is wasteful and brings no extra response. No more should be fed than is necessary for maximum response. The capacity of the animal to respond to the feeding is the factor of vital importance.

Sprouted Maize

Preliminary trials with sprouted maize in replacement of part of the root ration on an equivalent dry matter basis having given extraordinary results amounting to as much as additional live weight increases of 3 to 4 lb. weekly, further trials for confirmation of the results obtained and for guidance as to the best amount of sprout to include were carried out. In several of the trials with sprout the opportunity was taken to replace the ration of concentrates with dried grass on an equivalent weight basis. This was done both with medium grade and with high grade dried grass, and the results clearly indicate that in the latter we have a home food stuff quite capable of replacing the ordinary concentrate ration and of making us independent of imported concentrates.

. . . . .

Experiments III, IV and V give particulars of the nature of the investigations carried out with sprout and dried grass and of the results obtained.

Experiment III.—Duration 14 weeks (January to April, 1937):—

Aims in view—To ascertain the effect of replacing part of the root ration with sprout and concentrates with medium grade dried grass.

Group.	No. of Cattle.	Ration.	Live Weight at Start.	Live Weight at Finish.	Weekly Increase.
			lb.	lb.	lb.
I	8	Control	887	1,097	15·0
II	4	Control+Sprout	875	1,151½	19·7
III	8	Dried Grass as Concentrate	887	1,071	13·1
IV	8	Dried Grass+Sprout	887	1,115	16·3

In this trial the Control ration was the same as in Experiment I excepting that the daily allowance of concentrates started at 5 lb. and mangels replaced swedes in the final stages. The cattle had been outwintered until January.

The sprout included was equivalent on a dry matter basis to 20 lb. swedes and the allowance of swedes was reduced by that amount to keep the dry matter content of the rations similar.

The inclusion of sprout as in the preliminary trials again brought about a marked increase in live weight increase, progress being very materially accelerated. The benefit from its inclusion would appear to be greater when it supplements an ordinary ration of concentrates than one of dried grass though even with the latter the additional stimulus from sprout is very marked, amounting almost to an extra ½ lb. live weight increase daily. The speeding up of the rate of progress substantially shortens the feeding period and therein lies the great benefit from the inclusion of sprout.

Experiment IV.—Duration 12 weeks (January to April, 1938):—

Aim in view—To ascertain the optimum amount of sprout to feed.

The cattle used in this trial had been outwintered until January. The details of the experiment and of the results obtained are as follows:—

*Extended Abstract from *The Scottish Farmer*, March 30th, 1940.

Group.	No. of Cattle.	Ration.	Live Weight at Start.	Live Weight at Finish.	Weekly Increase.	Weekly Increase over Control.
			lb.	lb.	lb.	lb.
I	6	Control	917	1,106	15·7	—
II	8	Sprout replacing 10 lb. Swedes	905	1,141	19·6	3·9
III	6	Sprout replacing 20 lb. Swedes	917	1,150	19·4	3·7
IV	8	Sprout replacing 30 lb. Swedes	905	1,123½	18·2	2·5

The Control ration was again similar to that used in Experiment I. For groups II, III and IV the replacement of swedes with sprout was in all cases on the equivalent dry matter basis. Some variation naturally occurred in the composition of the sprout but the amounts required were approximately as follows:—

To replace 10 lb. swedes— 4½ lb. sprout.
To replace 20 lb. swedes— 9 lb. sprout.
To replace 30 lb. swedes—13½ lb. sprout.

It seemed that even a small amount of sprout would provide stimulus to progress and accelerate the rate of live weight increase. The slightly poorer response from Group IV was to some extent due to the fact that one animal made disappointing progress and when slaughtered was found to have a defective liver.

It should be noted that, as compared with the Control ration, the acceleration in progress of the three sprout groups averaged almost ½ lb. daily. As already pointed out this speeding up materially shortens the time required to fatten the cattle, the saving in time often amounting to as much as two to three weeks.

Experiment V.—Duration 12 weeks (October, 1938, to January, 1939):—

Aim in view—To ascertain the effect of replacing concentrates with high grade dried grass and of supplementing with sprout.

Group.	No. of Cattle.	Ration.	Live Weight at Start.	Live Weight at Finish.	Weekly Increase.	Carcase Weight to Unfasted Live Weight.
			lb.	lb.	lb.	Per cent.
I	6	Control	959	1,160	16·7	55·6
II	6	Control + Sprout	959	1,190	19·2	55·2
III	8	Concentrates replaced with Dried Grass	978	1,200	18·5	55·0
IV	8	Dried Grass + Sprout	976	1,209	19·4	54·8

The Control ration was as in Experiment I, and the commencing allowance of concentrates 6 lb. The amount of sprout fed was equivalent on the dry matter basis to 20 lb. swedes.

Comparing Groups I and III, it will be observed that the high grade dried grass has proved even superior to the ordinary ration of concentrates, and that the weekly live weight increase for Group III (18·5 lb.) is exceedingly good. It would appear as if the benefit from the inclusion of sprout was not so pronounced when fed in addition to *high grade* dried grass, being just under 1 lb. extra per week. This would almost suggest that the latter also supplied something which tended to give a stimulus to fattening, just as in the case of June grass at its best.

The cattle, on the conclusion of the feeding trial were slaughtered and sold on the dead meat stance. Despite the rather lower live weights of Group II, at the commencement of the trial, as compared with Groups III and IV, the bullocks in this group brought the highest average price, the actual figures, less sale expenses, being as follows:—

Group I.—Average price realised per bullock, £27 8s. 9d.
Group II.—Average price realised per bullock, £28 8s. 9d.
Group III.—Average price realised per bullock, £27 10s. 4d.
Group IV.—Average price realised per bullock, £27 19s. 0d.

It will be apparent that the inclusion of the sprout had made a substantial difference in the price obtained, and that the high grade dried grass had also given a very good return.

Experiment VI.—Duration 12 weeks (February to May, 1939):—

Aim in view—To compare results from high grade dried grass from Northumberland and from Ayrshire, also to ascertain the benefit, if any, from the inclusion of whey powder.

The bullocks used in this trial were outwintered until the end of January, 1939.

The dried grass replaced the concentrates on an equivalent weight basis, and the whey powder replaced 10 per cent. of the Control ration of concentrates. The particulars of this trial and of the results obtained are as follows:—

Group.	No. of Cattle.	Ration.	Live Weight at Start.	Live Weight at Finish.	Weekly Increase.	Carcase Weight to Unfasted Live Weight.
			lb.	lb.	lb.	Per cent.
I	8	Control	910	1,125	17·9	57·0
II	8	Dried Grass ex Northumberland	908	1,111	16·9	55·8
III	8	Dried Grass ex Ayrshire	908	1,128½	18·4	56·3
IV	8	Whey Powder	910	1,141	19·2	57·0

The Control ration was again the same as in Experiment I, except that the commencing allowance of concentrates was 5 lb. instead of 6 lb.

The dried grass from Northumberland proved scarcely as good as the concentrate mixture, but, as in the previous experiment, that from Ayrshire was slightly better.

Comparing Groups I and IV, there has been a slight benefit from the inclusion of whey powder and further work is called for, especially as in the earlier stages of the trial the benefit was much greater and more in keeping with that from sprout.

The cattle were sold on the dead-weight basis at the close of the experiment, the grading for the different groups being as follows:—

Group I.—Super grade, 7; ordinary grade, 1—Total, 8.
Group II.—Super grade, 6; ordinary grade, 2—Total, 8.
Group III.—Super grade, 6; ordinary grade, 2—Total, 8.
Group IV.—Super grade, 7; ordinary grade, 1—Total, 8.

The fact that 26 out of a total of 32 were classed as super grade indicates that although the feeding period was only of 12 weeks' duration the cattle were nevertheless well finished.

A Substitute for Sprouted Maize

The influence of sprouted maize in accelerating rate of progress in the case of fattening cattle is now beyond all doubt (though we are still in the dark as to the underlying reason), but in time of war the fact that the maize has to be imported constitutes a very real drawback. Many will naturally wonder why one of the home cereals—wheat, barley or oats—was not used. The seeds of these, however, are very much smaller than maize, and do not contain such a large store of nutriment for the nourishment of the young plant in the early stages of growth. Peas, on the other hand, do; and as they can be successfully grown at home, the idea that peas might take the place of maize suggested itself, and the following trial was accordingly undertaken:—

Experiment VII.—Duration 12 weeks (October, 1939, to January, 1940):—

Aim in view—To ascertain the effect of replacing one-third of the root allowance with sprouted peas supplying an equivalent amount of dry matter, the replacement being made in rations with and without dried grass.

The details of the trial and the results obtained are as follows:—

Group.	No. of Cattle.	Ration.	Live Weight at Start.	Live Weight at Finish.	Weekly Increase.	Carcase Weight to Unfasted Live Weight.
			lb.	lb.	lb.	Per cent.
I	8	Control	894	1,062	14	55·4
II	6	Control + Sprout (Peas)	908	1,113	17	54·8
III	8	Dried Grass	892½	1,060½	14	54·1
IV	6	Dried Grass + Sprout (Peas)	908	1,106	16½	52·1

The Control ration was again the same as in the previous experiments, and the dried grass replaced the concentrates on an equivalent weight basis.

It will be observed that the inclusion of sprouted peas brought a good response, the additional weekly gains being 3 lb. for Group II and 2½ lb. for Group IV, a result very similar to that from sprouted maize.

The cattle were sold on the dead-weight basis at the end of the 12-week feeding period, when the grading was as follows:—

Group I.—Super grade, 5; ordinary grade, 3—Total, 8.
Group II.—Super grade, 6; ordinary grade, 0—Total, 6.
Group III.—Super grade, 7; ordinary grade, 1—Total, 8.
Group IV.—Super grade, 4; ordinary grade, 2—Total, 6.

The number of super grade cattle again indicates that they were well finished after 12 weeks' feeding, those in Group II particularly so, as they all qualified for super grade. Whilst it would be unwise to put undue stress on a single experiment with relatively few animals, the result from sprouted peas is certainly promising, and further trials with this product are in progress at the present time both with dairy cows and fattening cattle.

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Sheep Feeding Experiments

The lambs used were purchased at one of the autumn sales. They were run on grass until well through the month of November, or even into December. Before going on to the root break, they got a little concentrates for one or two weeks to get them accustomed to trough feeding, otherwise they got no feeding until the experiments commenced.

A fairly wide range of problems has been tackled, but in recent years some consideration has been given to the use of dried grass and to the effect of restricting the allowance of concentrates. The dried grass would seem to be specially valuable for feeding in conjunction with roots, probably because of its bulky nature and the high percentage of water in roots.

Experiment VIII.—Duration 9 weeks (December, 1938, to February, 1939):—

Aim in view—To ascertain the result of replacing part of a mixed concentrate ration with high grade dried grass.

The dried grass for Groups II and III was ground to meal and mixed with the concentrates. Its inclusion added greatly to the bulk and the time taken to consume the daily allowance. This was a drawback in wet and in windy weather but can be overcome by feeding the dried grass unground in the ordinary hay rack lined with sheep netting to prevent waste. That was the method adopted for Group IV where it replaced the hay.

Group.	No. of Sheep.	Ration.	Live Weight at Start.	Live Weight at Finish.	Increase for Experiment Period.	Carcase Weight Head On.
			lb.	lb.	lb.	lb.
I	40	*Control	86	102·1	16·1	52·8
II	40	Half Concentrates replaced with Dried Grass	86	104·6	18·6	56·0
III	40	One-third Concentrates replaced with Dried Grass	86	107·4	21·4	57·3
IV	40	As Control, but Hay replaced with Dried Grass	86	105·2	19·2	56·0

*The Control ration fed to Group I was as follows:—
Concentrates, 1 to 1¼ lb. daily by weekly increases of 1 oz. Concentrates mixture: 2 pts. Crushed Oats; 2 pts. Flaked Maize; 1 pt. Dried Grain; 1 pt. Dec. Ground Nut Meal; 1 pt. Dec. Cotton Seed Meal.
Cut Swedes, 9 to 11 lb. daily—increases at 3-week intervals.
Hay, ¼ lb. daily.

With regard to the results, the sheep were weighed individually at the start of the trial on a very delicate balance and again at the end of the trial. For identification a numbered metal disc was tied round the neck of each sheep which made the recording of individual progress very simple. Too much stress should not be put on the weights of the sheep at the end of the feeding period, as after wet weather in particular there is generally some mud adhering to the wool which affects the weight, *the carcase weights give the most reliable guidance as to progress.* In view thereof arrangements are always made for the sheep being killed as soon as the experiment is finished and weighed just after they have been slaughtered and while the numbered metal disc is still attached.

With regard to the results, the inclusion of the dried grass, which was of exceptionally good quality, proved beneficial in every case, the live weights and carcase weights alike being considerably better than from the Control ration. The best result was from Group III, which contained dried grass amounting to one-third of the concentrate ration and the carcase weight from which was actually 4½ lb. per sheep or 180 lb. for the group of 40, greater than from the Control ration.

In view of the results obtained and the large number of sheep in each group *there can be little doubt as to the useful part high grade dried grass may play in winter mutton production.*

Experiment IX.—Duration 9 weeks (December, 1939, to February, 1940):—

In view of the shortage of feeding stuffs since the outbreak of war, the experiment carried out during the winter was on slightly different lines, being designed to ascertain the effect of reducing the allowance of concentrates and increasing the hay, also of feeding a ration low in protein because of the difficulty in getting protein rich concentrates. Dried grass, though scarcely of such good quality as in the previous year, was also included in one ration.

The details of the experiment and the results obtained are as follows:—

Group.	No. of Sheep.	Ration.	Live Weight at Start.	Live Weight at Finish.	Increase for Experiment Period.	Carcase Weight Head On.
			lb.	lb.	lb.	lb.
I	30	*Control	75·2	91·4	16·2	49·7
II	30	Less Concentrates, more Hay	74·8	85·7	10·9	44·9
III	30	Low Protein Concentrates	74·7	91·4	16·7	48·9
IV	30	Half Low Protein Concentrates replaced with Dried Grass	74·4	91·2	16·8	46·7

*Reference at foot of Col. 1, opposite page.

For Group II the concentrate allowance was ¼ to ¾ lb. daily by 1 oz. increase weekly and the hay allowance ¾ lb. daily. For Group III the ration was as for Group I; with the omission of the protein rich decorticated cotton seed meal in the concentrate mixture the amount fed was the same. For Group IV the ration was as for Group III except that half of the concentrate allowance was replaced with dried grass.

At least two interesting results emerge in this trial. Comparing Groups I and II the cutting down of the concentrates for the latter group, even though they were replaced with extra hay, gives a live weight increase of 5·3 lb. and what is more important, a carcase weight of 4·8 lb. under that of Group I. It is accordingly unwise even under war conditions to reduce the concentrates to the extent that was done.

Comparing Groups I and III for which the feeding was identical excepting that low protein concentrates were used for Group III, there is practically no difference in the result. In a trial of like nature carried out a few years ago a similar result was obtained. This would seem to indicate that over a relatively short fattening period a low protein ration will suffice. The sheep fatten rapidly but do not grow to quite the same extent as with a more liberal allowance of protein.

The substitution of the dried grass for half of the low protein ration while satisfactory from the point of view of live weight increase on which too much stress should not be put, gave rather a disappointing carcase weight. Possibly under the adverse weather conditions that prevailed for part of the time the sheep did not get the full benefit from the generous allowance of dried grass in the concentrate mixture.

With regard to the slaughter of the sheep, they were by arrangement with the Ministry of Food conveyed to Ayr and killed on the day the experiment finished (Tuesday, February 20th), the weights assigned to the different groups under the Ministry's Marketing Scheme as the basis for payment being as follows:—

Group I, 45 lb.; Group II, 40 lb.; Group III, 44 lb.; Group IV, 42 lb.

If we allow and deduct 4·8 lb. for weight of head from the actual carcase weights then the estimated carcase weights assigned are practically identical with the actual weights. *Such a result should make for confidence in the Marketing Scheme in operation.*

Conclusion

The nine feeding trials to which reference has been made may well be left to convey their own lesson. They certainly show the wisdom of restricting the allowance of concentrates for cattle and the undoubted value of sprout and dried grass in stock feeding.

From the economic aspect the benefit from speeding up fattening by the use of sprout effects a saving in cost often amounting to as much as £1 per bullock fattened. The sprout-fed cattle because of their greater rate of progress may be said to fatten considerably ahead of the Control group. The greatest benefit would accrue from marketing them as soon as they were ready for market, but in order to obtain comparative results they require to be kept to the end of the experimental period.

The actual rate of progress (the growth curve) has been worked out for a number of the trials. For the sprout ration it averaged over the first two weeks 3·7 lb. daily and for the final two weeks 1·9 lb. as against 3 lb. for the first two weeks and 1·7 lb. for the last two in the case of the Control group. In this connection the fact should not be overlooked that rate of progress slows up as the cattle approach the prime stage.

Further work still requires to be carried out to ascertain wherein the stimulus to fattening from sprout really lies. At present we are still in the dark on this point and it is possible that with fuller information there may be a short cut to the providing of the desired stimulus.

As regards dried grass, the results show that in high grade dried grass we have a home food stuff of very great value and one which if fully utilised might play at any time and particularly under war conditions a great part in enabling us to meet home food requirements by home production.

*The Control ration fed to Group I was as follows:—

Concentrates, ¾ to 1¼ lb. daily, by 1 oz. increase weekly. Mixture: Equal parts Crushed Oats; Flaked Maize; Dried Grains; Dec. Cotton Seed Meal.

Cut Swedes, 8-9-10 lb. by 1 lb. at 3-week intervals.

Hay, ¼ lb.

THE VETERINARY RECORD

June 8th, 1940.

COLLECTION OF SEMEN AND ARTIFICIAL INSEMINATION

IN a previous issue we considered in general the position of Britain as contrasted with some overseas countries regarding what is perhaps the more spectacular application to livestock breeding of artificial collection of semen and insemination.

It is desirable to consider now whether the modern method can serve any useful purpose. From the experience already acquired by those among us who have employed the method, there is no doubt that in the commercial herd and stud there is a real need for its greater use. Probably one of the more outstanding advantages is that it enables conception to take place without contact between the sexes.

It might be well to consider its application from two different aspects, first, as an animal husbandry measure, and second, as a disease control measure, though there is actually no real distinction between the two even when applied to an individual animal.

As a measure calculated to improve livestock quality, its employment amongst locally-situated crofters and small-holders is worthy of mention. Most veterinarians know how difficult it is for a farmer or crofter who undertakes the management of a bull or stallion for a local livestock society to maintain a high fertility rate. Cows, especially, arrive for service at all hours, sometimes several simultaneously; difficulty is experienced in ensuring that each member sends only "clean" cows; where considerable distances must be travelled, especially in winter, the cows often arrive out of season; sooner or later a cow with contagious vaginitis or *Br. abortus* infection is served, the bull becomes infected, and either must be changed or spreads infection. There is a constant source of worry and irritation. By suitable arrangements, a clean bull can be kept at one premises, the semen, collected by the veterinarian when necessary, can be transported by car to the cow which is inseminated without leaving the premises. Infected cows do not contaminate the bull, and since it is frequently possible to inseminate two or more cows

from one collection, the bull's energies are conserved. In a more extended manner, the larger commercial dairy herd able to maintain one or more milk-tested or progeny-recorded first-class bulls, can frequently supply semen for insemination to smaller herds near at hand without the risks which under present methods prohibit full use being made of such bulls. Bulls in attested herds might, by suitable arrangement, be made to sire calves in smaller herds undergoing a grading up of quality simultaneously with eradication of disease. The advantages to the owner of a small herd of cows—commercial or pedigree—who could not afford to keep an expensive bull, in securing the limited use of semen from a first-class bull for fertilising his cows, are so obvious as to need no emphasis. They apply to the beef breeds just as much as to the dairy breeds, and in perhaps a rather more restricted sense to the breeds of both heavy and light horses. It may be argued that the advantages would be all on the side of the small owner. This is, however, not so, for already in some of the larger herds where five or six bulls have hitherto been necessary, it has been found possible to dispense with the maintenance of one or two of these after collection and insemination are introduced, and a reasonable income, not otherwise available, accrues from the sales of semen which goes towards the maintenance costs of the bull concerned.

As a weapon for the control of disease in herd or stud, collection and insemination can be a powerful addition to the veterinarian's equipment. It is possible to reach an opinion of a bull's breeding capacity based upon much sounder evidence by employing collection of the whole uncontaminated ejaculate for examination than by relying upon fractions collected from vagina, penis or even prepuce. It is possible to determine total volume, density of sperms per given unit, volume of semen, variations from the normal in accessory gland secretions, presence of extraneous cells, pus, blood, etc., sperm motility, and so on, which cannot be determined by the vaginal or drip methods. These are important criteria, which should be taken into consideration when examining a bull for fertility; sperm morphology, degree of staining affinity, and density upon a prepared slide smear are in reality of very little value by themselves, yet it is to be feared that many bulls in this and other countries have been condemned on slide pictures alone. A further advantage in examining for fertility by this method is that an exhaustion test can be conducted. Three, four, five or more successive collections can be made, and the rate of deterioration in successive ejaculates can be accurately measured.

In herds of cows, there are several important diseases which lend themselves to some measure of control by the employment of collection and insemination. There are contagious abortion, trichomoniasis, contagious vaginitis, so-called coital exanthema, while infection with genital tuberculosis, and possibly with *Corynebacterium pyogenes*, and other organisms, might be added. The main advantage to be gained is that in an already infected herd, after the bull has either been cured by local treatment or replaced by one that is disease-free, it is possible to continue to fertilise already infected cows, young maiden heifers, and clean cows, without any risk of spreading the infection to the healthy animals. The collection may be done either by using bulling stocks, by means of a dummy or by training an old cow to stand for pseudo-service. The semen being collected into the sterilised artificial vagina, is, of course, uncontaminated, and transfer of infection by the medium of the bull's penis does not take place. Naturally, one essential of such a method of control is that a disease-free bull should be employed, and the method of collection of semen can to some extent be used to determine whether the ejaculate is contaminated with specific pathogenic organisms.

Those whose work brings them into close contact with herds in which sterility is rife need no warning; they will realise that collection and insemination have their uses and their limitations. To others, however, it may not be inappropriate to mention that nothing is further from our purpose than to give the impression that collection and insemination by themselves are sufficient for dealing with any of the diseased conditions mentioned. These techniques have their proper place and can be useful to reinforce other measures taken. We do not wish to over-emphasise their importance, but rather to suggest that they are not yet being used as extensively as they might. The veterinary practitioner himself must decide in just which herds or studs he can usefully employ or advise artificial collection and insemination as a part of his campaign to improve livestock health, to improve livestock production in quality and quantity, and to control or eradicate disease.

FOOD AND DRUGS PROTECTION AGAINST GAS

The Ministry of Food have issued a booklet which describes protective measures that can be taken against contamination of foodstuffs by poison gases (Stationery Office, 3d. net). This pamphlet supersedes the A.R.P. publication which appeared in 1937. "The recommendations made for the storage of foods appear" (says the *Pharmaceutical Journal*) "to be equally applicable in the case of drugs and may be summarised in the short statement—use an impervious covering such as sealed metal or metal-lined cases, glass bottles, earthenware vessels with well-fitting glass, metal or Bakelite lids. Good or fairly good protection is afforded by greaseproof paper, waxed, or papier-maché cartons, transparent cellulose wrappings (those based on benzyl cellulose are less satisfactory), and by bags lined with transparent cellulose wrappings. For protection against gas or vapour wooden and thick cardboard boxes can be employed if all the joints are tight, but they would be relatively useless against liquid poison gas. All fatty material must be regarded with suspicion after exposure to blister-gas vapour."

CLINICAL COMMUNICATION

Contagious Keratitis in Cattle

J. F. CRAIG AND A. RATTER

Outbreaks of keratitis in cattle have been recorded since the latter portion of the eighteenth century in several European countries, in America, Africa and elsewhere. It is impossible to be certain that the eye changes noted were all of the same type or mainly confined to the conjunctiva and cornea.

In this country the records of keratitis of cattle appearing in outbreaks are few in number.

Penberthy in 1897 gave an account of four outbreaks observed in 1892, 1895, 1896 and in 1897, and an exceedingly interesting contribution was made by E. Brown in 1934 in which he described a series of outbreaks in two areas of this country occurring in 1929 and 1930. In one area five farms were involved while in the other the affection was observed on at least six premises, and mention was made of other outbreaks in another district.

All the records seem to agree that the disease is seasonal in its occurrence, and is most common in the summer and autumn months and spreads at pasture. In one outbreak described by Penberthy 10 out of 13 calves were affected although kept in the byre.

As a rule, the disease is more common in young cattle, but in a varying number of outbreaks cows were also affected or even formed the bulk of the cases.

As regards the cause and artificial transmission much requires to be ascertained. Attempts at transmission have been successful only in a small number of cases. Penberthy in one outbreak was able to transmit the affection to two healthy cattle by inserting between the eyelids some of the ocular discharge of two affected cattle. Moreover, one of two calves placed with the experimental cattle also developed the disease in ten days.

A number of different organisms have been incriminated by different authorities as the cause of the affection, but on insufficient grounds. In 1931, Coles demonstrated a Rickettsia—*R. conjunctiva*—in the epithelial scales of the conjunctiva and established its pathogenicity for other susceptible species. That observation requires confirmation.

In this and other countries where keratitis of an enzootic nature has been noted in cattle, none of the other domesticated animals were found to have been affected, although they were in contact or were grazing on the same fields as affected cattle. E. Brown, in describing the outbreaks in cattle, noted that sheep and horses on the same pastures remained free from the disease. Moreover, one of us (J.F.C.) has observed several outbreaks of keratitis in sheep in which cattle grazing on the same fields remained free from eye trouble. These observations would seem to suggest that at least in some instances there may be different factors responsible for outbreaks in cattle and the other farm animals.

On account of the paucity of the literature on the subject in this country, the authors wish to put on record a recent outbreak of keratitis in cattle which they recently had an opportunity of examining in the practice of Mr. F. H. Leech, M.R.C.V.S. The herd in which the affection appeared they visited first in the first week of October, 1939. It comprised about 50 Shorthorn and Friesian cows and 20 heifers.

The first case was observed in a Friesian cow which had been imported from Canada in August, 1929, and in it the affection appeared early in September. When seen the animal was recovering and was now in the house and had been suckling two calves for one month. None of these calves became affected. Previous to calving, the cow had been at grass with the rest of the herd.

From the beginning of September to the beginning of October, seven other cattle came to be affected, the last one on the day prior to our visit.

The second animal to show symptoms was a three-year-old heifer which had recently calved. The other six cattle which contracted the affection were all heifers varying from 12 to 18 months of age.

All the cattle in the herd grazed on the same fields and the disease did not spread to the other cows.

In two heifers both eyes were affected but in the others one eye only, right or left, was involved. As the animals were seen in various stages of the affection it was possible to outline the course of its development. It may be stated at once that the disease was purely local in its effects. The appetite was good and the condition of the cattle was as good as that of the healthy animals.

The disease began with excessive lachrymation, photophobia, congestion and oedema of the conjunctiva and swelling of the eyelids. Manipulation of the affected eyes was objected to. Soon the lachrymation was followed by a considerable amount of yellow purulent discharge which ran over the face from the lower eyelid and nasal canthus and the cornea showed a varying amount of opacity. The densest part of the opacity was always central in position and it extended a variable distance towards the corneosclerotic junction where it faded away. The opacity was white, and the central part was oval in outline, raised up, even reddened and ulcerated and gave the impression of the effect of an injury. In two of the cases the whole cornea was white and opaque and in one heifer both eyes were so affected. This animal seemed to see in a dim sort of way and could not be caught for examination.

In the later stages the swelling and congestion of the conjunctiva and the discharge had disappeared and only an opacity of the cornea was left with a denser, round, raised patch at the centre of the cornea. That was the appearance presented by the Friesian cow. In none of the animals did the interior of the eye appear to be involved.

With one exception all the affected cattle were confined in a darkened house for two or three weeks and then as they were showing great improvement, were put to grass with the rest of the herd. As for medicinal treatment, cod liver oil was dropped into the conjunctival sac. The yearling heifer which was affected in both eyes and could not be caught remained at grass and was untreated.

When the herd was visited in November, it was found that the disease was passing off and that for the most part only a white mark remained about the centre of the cornea. Even in the untreated heifer the cornea was becoming less opaque and at some points was quite clear. No further cases developed. By March, 1940, no mark remained on the corneas of four of the cattle and nothing more than a white speck about the middle of the cornea in the other three.

Even in the untreated heifer there was only a small opalescent patch over both eyes.

To determine whether the disease was artificially transmissible swabs of discharge were taken on our first visit from the conjunctival sacs of three animals in the early stage of the affection.

Some of this discharge was rubbed over the eye of a young heifer but the result was negative. Moreover, mixed cultures were applied in the same way in two other cases without any subsequent reaction. The organisms identified in the cultures were chiefly haemolytic streptococci and other micrococci.

It might be supposed from the experiments that the disease was not contagious and that the eye lesions were due to an injury such as might be inflicted by barbed wire or thorns, but there was no evidence of this. It was, of course, rather curious that the central part of the cornea was the important site of the lesions. Not improbably the infection, whatever it was, was introduced by the Friesian cow and thence transmitted perhaps by biting flies. If that were so, it would suggest that for successful transmission the cornea would have required to be damaged before the inoculum was applied. The whole history of the outbreak suggests the spread of some form of infection.

References

Nicolas, E. (1908). Ophthalmologie Vétérinaire, 167.
Penberthy. (1897). *J. comp. Path.* **10.** 263.
Brown, E. (1934). *Vet. Rec.* **14.** 29.
Allen. (1918). *J. Amer. vet. med. Assoc.* **54.** 307.
Magens. *N. Amer. Vet.* **17.** 24.
Canham. (1923). *Vet. J.* **79.** 389.
Jones and Little. (1923). *J. exp. med.* **38.** 139.
Tassé. (1934). *Clin. vet. Milano.* **57.**
Donatien and Lestoquard. (1939). *Rev. méd. vét.* 123.

ABSTRACTS

[A SUPRASELLAR TUMOUR IN A DOG. White, E. G. (1938.) *J. Path. Bact.* **47.** 323-326.]

The subject was a male fox terrier which had been very excitable for the past six months. During this time it resented attempts to handle its head, became lethargic and very fat and drank excessive quantities of water. There was a tendency to move in large circles to the left. The testes were small. There was no disturbance of vision. The animal was destroyed, the diagnosis being an intracranial tumour involving the hypophysis.

Autopsy revealed a large tumour occupying the suprasellar region and ventral part of the midbrain; there was no recognisable pituitary tissue. Portions of the tumour appeared cartilaginous. Histological examination showed a considerable diversity of structure—columns of undifferentiated epithelial cells separated by dense collagenous septa, squamous epithelium lining small cavities, and forming "cell nests," invasion by tumour cells of the aqueduct of Sylvius (no hydrocephalus was found at autopsy). Mitoses were numerous. The tumour was considered to be a cranio-pharyngioma of very diverse and unusual structure, resembling neoplasms of this region described in human pathology. No record of such a tumour was found in veterinary literature.

E. G. W.

[TWO CASES OF OESOPHAGEAL STRANGULATION. (Trans. title.) Möcsy, von J. (1939.) *Tierärztl. Rdsch.* **45.** 343-345.]

Two puppies, aged eight weeks, exhibited symptoms of oesophageal obstruction which were confirmed by clinical and X-ray examinations. *Post-mortem* examination revealed the abnormal passage of the thoracic oesophagus, in company with the trachea, between the aorta and the pulmonary artery instead of to the right of the aortic arch. Strangulation was due to the pressure of the ligamentum arteriosum.

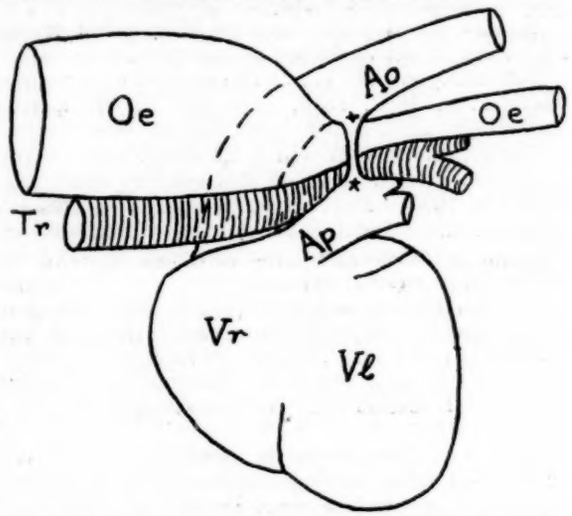

Fig. I.—Vr=right ventricle. Vl=left ventricle. Ao=aorta. Ap.=pulmonary artery. *—*=ligamentum arteriosum. Tr=trachea. Oe=oesophagus.

In foetal life and immediately after birth whilst the ductus arteriosum is still functioning, there would be an appreciable space between these vessels; but as the ligament was formed and began to contract, pressure on the oesophagus was increased and symptoms appeared. No symptoms of dyspnoea were observed owing to the more resistant nature of the walls of the trachea.

C. W. O.,

IN PARLIAMENT

The following questions and answers are among those recently recorded in the House of Commons:—

Animal Feeding Stuffs (Northern Ireland)

Dr. Little asked the Parliamentary Secretary to the Ministry of Food whether, in view of the facts and figures placed before the Ministry regarding the shortage in the delivery of feeding stuffs to Northern Ireland since the beginning of this year, he will make arrangements for the supply of the promised quota to Northern Ireland, thus placing it on a par with Great Britain?

Mr. Boothby: Since February 1st the proportion of pre-war supplies of maize and barley allocated to Northern Ireland has been slightly higher than the proportion allocated to Great Britain, but it has not been possible to make up the January deficiency. I have communicated with my hon. Friend in reply to the letter he addressed to me on this subject, and I am having further inquiries made.

Dr. Little: Would the Minister give a promise that as early as possible he will make up the deficiency for January?

Mr. Boothby: Yes, Sir, as early as possible.

REVIEW

[**RAW MATERIALS AND FOODSTUFFS.** Published by League of Nations, Geneva, 1939, Economic Intelligence Service. 75 pp. 2s. 6d. Agents: Allen & Unwin, Ltd., 40, Museum Street, London.]

This is a remarkable production, but its appeal will be probably mainly restricted to those concerned with the statistics of raw materials and foodstuffs from a point of view of international trade. The publication brings together an enormous amount of information in rapidly available form relating to production and consumption, country by country, of over 200 different commodities, under the headings of Minerals (metallic and non-metallic); Forest products and Fibres; Oil Seeds and Oils; Cereals; Vegetable products, and Animal products.

It is by far the most comprehensive publication upon the subject ever attempted, and will be of great value as a work of reference to those whose concerns are with the fluctuations of trade in the commodities listed. Consisting as it does of a series of tabular statements, it does not lend itself to the usual form of a review, but it can be confidently recommended to any wishing to become familiar with the volume of trade of any country in each of the respective substances listed.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

June 12th.—Annual Summer Meeting of the Lancashire Division, N.V.M.A., at the Evans Biological Institute, Runcorn.
June 13th.—Meeting of the Lincolnshire and District Division, N.V.M.A., at Sleaford, 2.30 p.m.
June 14th.—Meeting of the Mid-West Division, N.V.M.A., at Bristol, 2.30 p.m.
June 17th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 4 p.m.
June 27th.—R.C.V.S. Written Examinations begin.
July 3rd.—Provisional date for commencement of R.C.V.S. Oral and Practical Examinations.

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ROYAL COLLEGE OF VETERINARY SURGEONS

Council Election Result

At the annual meeting of the Royal College of Veterinary Surgeons, held at 10, Red Lion Square, London, W.C.1. On Thursday last (June 6th, 1940) at 12 noon, the result of the election of Members of Council of the Royal College to fill the ten vacancies (eight by rotational retirement, two by decease) was declared by the President, Professor Geo. H. Wooldridge, as follows:—

Name	*Votes*
G. H. Wooldridge	952
A. W. Whitehouse	833
T. M. Mitchell	816
J. B. Buxton	806
J. Share Jones	786
J. W. Procter	784
H. W. Steele-Bodger	781
H. Sumner	739
J. F. D. Tutt	726
Sir John Kelland	575
T. Hare	555
R. C. G. Hancock	549
J. Smith	540
H. Kirk	460

(The above-named were elected.)

Mr. J. F. D. Tutt and Sir John Kelland will fill the vacancies caused by the deaths of Sir Frederick Hobday and Mr. Robert Simpson, whose term of office would have expired in 1941.

Representative of Eire

It was also announced that Professor J. J. O'Connor had been re-elected unopposed as representative of Eire on the R.C.V.S. Council.

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National A.R.P. for Animals Committee

Issue of Equipment

Every endeavour is being made to expedite the distribution of equipment, but in view of the essential re-equipping of the British Expeditionary Force and the issue of equipment necessary for the newly-created Local Defence Force, it is anticipated that delay in meeting the needs of the National A.R.P. for Animals Committee personnel will, unfortunately, be inevitable—a delay which, it will be realised, is beyond the control of the Committee.

. . . . .

Scheme for Rural Areas

In connection with the above scheme, details of which were published in our last issue, on p. 413, col. 2, para. 3, it is suggested that a committee should be formed in each division to assist the Divisional Veterinary Officer to carry out the preliminary arrangements in selecting persons who would be suitable to act as Divisional Animal Stewards and Parish Animal Stewards. This committee is not intended to replace any divisional committees already established, particularly if these committees have adequate representation of the National Farmers' Union. It should be made clear that the Rural Areas Scheme as put forward from Headquarters is the basis of a national arrangement, but it is realised that in certain regions *it will have to be adapted to meet local needs.* For example, in some counties, the lines of communication may be arranged on a county basis, whereas in others it may prove preferable to arrange them on a divisional basis.

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Personnel

Any veterinary surgeon who has not been asked to assist the National A.R.P. for Animals Committee and who now feels that, with the extension of its activities to the farm stock of the country, he would wish to assist, should communicate with the Chief Executive Officer, 36, Gordon Square, W.C.1.

. . . . .

Casualties Among Farm Stock

The Ministry of Food have issued instructions to their Divisional and County Slaughterhouse Agents asking them to be prepared to deal with large numbers of casualties to farm stock arising from enemy action. These County Slaughterhouse Agents have, in some areas, interpreted their instructions to mean that they themselves should organise their areas for these salvage operations; the Ministry of Food, however, have emphasised that these arrangements must be made in full co-operation with the services of the National A.R.P. for Animals Committee and must be welded into the Rural

Areas Scheme of that Committee, and thus prevent possible overlapping of activities. It is essential, therefore, that Area Veterinary Controllers (where such exist) and County Veterinary Officers should get into touch with their County Slaughterhouse Agents as early as possible.

Area Veterinary Controllers

In order to facilitate the prosecution of the Rural Areas Scheme in full co-operation with branches of the National Farmers' Union and the Ministry of Food's Local Representatives, certain counties are being grouped together under the supervision of Area Veterinary Controllers. The Area Veterinary Controllers are simply assisting the County Veterinary Officers in the development of their county organisation.

Up to the present the following have kindly agreed to act as Area Veterinary Controllers: Professor T. Dalling, Cambridge, with the assistance of Mr. C. Wright, Cambridge—for the Eastern Counties, including Lincolnshire, Norfolk, Suffolk, Cambridgeshire and the Isle of Ely, Huntingdon, the Soke of Peterborough, Bedford, Hertford and Essex; Mr. W. Lyle Stewart, Newcastle-on-Tyne, for the North of England, including Northumberland, Cumberland, Westmorland and Durham and the West Riding of Yorkshire; Major W. J. B. DeVine, for Worcestershire, Warwickshire and Staffordshire.

Inter-Divisional Co-operation

Although for the purposes of organisation the country is divided into Divisions from the point of view of an Animal A.R.P. Service, it is emphasised that veterinary officers from one division should be prepared readily and immediately to assist the Service in another division should the latter be very heavily affected as the result of enemy action. Unless full co-operation is established between adjoining areas there is a grave danger of the Service not being adequate to deal with the results of heavy attack, with correspondingly extensive casualties.

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R.C.V.S. OBITUARY

Field, George, Burpham, Nr. Arundel, Sussex. "Existing Practitioner." Died April 7th, 1940.

Reekie, William Walton, 14, Aberdeen Court, Maida Vale, W.9. Graduated Edinburgh, April 18th, 1977. Died February 4th, 1939.

Waghorne, Robert Raglan, High Street, Edenbridge, Kent. Died May 19th, 1940; aged 86 years.

Young, William Jackson, F.R.C.V.S., D.V.S.M. (Vict.), Superintending Inspector, Animal Health Division, Ministry of Agriculture and Fisheries, 429, Great Western Road, Aberdeen. Graduated Edinburgh, December 23rd, 1905. Died June 1st, 1940.

Mr. W. Jackson Young, F.R.C.V.S., D.V.S.M. (Vict.)

The information of the death of Mr. W. Jackson Young, which reaches us shortly before we go to press, will be received with the deepest regret not only by his colleagues in the Ministry's service, but by the very large number of those in other veterinary spheres who also enjoyed his friendship and, with them, held him in deep affection and esteem. We hope to publish further and fuller tributes to Mr. Jackson Young, who passed away suddenly on Saturday last, in later issues. In the meantime it must be said that he was a valued member of the Ministry's staff. A native of Edinburgh, after graduation, he was for some time a veterinary officer of the Sheffield Corporation. He then entered the Veterinary Department of the Ministry, his period of service extending to thirty years, and on the establishment of the State Veterinary Service two years ago was put in charge of one of the seven areas then instituted in Scotland comprising the counties of Aberdeen, Banff, Moray and Nairn.

A well-known and respected figure in his profession and in agricultural circles, Mr. Jackson Young was a most loyal supporter of the National Veterinary Medical Association, of which he was a Life Member, and a regular attender at Congress, to the proceedings of which he was an exceedingly acceptable contributor, both as essayist and in discussion; the friendliness of his disposition was manifest to all at these meetings and he will be missed sorely. The kindliness of his nature was evident by his quietly enthusiastic work on behalf of the Victoria Veterinary Benevolent Fund. The range of Mr. Jackson Young's interests was very wide, but chief among them was an absorption in veterinary therapeutics—Banham and Young's "Veterinary Posology," which attained its sixth edition in 1936, comes immediately to mind—and the subject of Veterinary Jurisprudence. The most sincere sympathy will be extended to Mrs. Jackson Young in her bereavement.

The Funeral

The funeral service of the late Mr. W. Jackson Young took place at the Aberdeen Crematorium on Tuesday, June 4th, in the presence of a large gathering of relatives and friends.

Amongst his colleagues in the veterinary profession were the following: Representing the Ministry of Agriculture and Fisheries—Major D. S. Rabagliati; Messrs. C. McPherson, G. Howie, R. J. P. Watson, J. G. Souter, J. M. McDonald, D. M. McIntyre and M. H. W. Miller; also Messrs. G. Argo (Aberdeen), D. Cumming (Peterculter), J. C. Grant (Aberdeen), W. Hepburn (Aberdeen), R. W. Johnston (Longside), A. Kerr (Ellon), J. Lyon (Aberdeen), W. J. B. Robson (Laurencekirk), representing the Scottish Branch of the N.V.M.A., Q. M. Service (Ellon), A. McK. Sievwright (Tarland) and A. M. Smith (Peterculter).

There were also present: Messrs. A. W. Wannop, Agricultural County Organiser; W. Moore, North of Scotland College of Agriculture; R. T. Anderson of Messrs. Reith and Anderson, Auctioneers; J. O. Skea, Incorporated Trades; and Messrs. J. Ballantyne and W. McDonald, Aberdeen Public Health Department.

Mr. Robert R. Waghorne

Mr. Robert R. Waghorne had lived in Edenbridge all his life and had practised as a veterinary surgeon since, early in life, he succeeded his father in practice. Mr. Waghorne was an original member of the Whit-Monday Hospital Sports; he was also a past President of the Edenbridge Men's Club and many other local organisations had his support. In his younger days he was associated with practically all the sporting clubs in the town as a playing member.

* * * * *

PERSONAL

Retirement.—Mr. Archibald Edgar, M.R.C.V.S., who has been in practice in Whithorn for nearly 50 years, has disposed of his practice to Mr. Neil MacEwen, M.R.C.V.S., Wigtown. Mr. Edgar, who is a native of Mochrum, has been in practice for 60 years, and for almost 20 years was part-time inspector for the county under the Contagious Diseases of Animals Act. Mr. Edgar is also a noted breeder of Border Leicester sheep.

Will.—Robertson, Mr. James Bell, M.R.C.V.S., of Lancaster (net personalty £20,183), £22,968.

* * * * *

NEW PETROL RATIONING ORDER

The Secretary for Petroleum has made the Motor Fuel Rationing (No. 2) Order, 1940, to strengthen and clarify the provisions of the order made last September, which

it supersedes. The principal provisions of the new order include the following:—

Motor fuel must not be furnished or acquired except against the surrender, at the time of supply, of valid coupons. It must only be used for the purpose and in the vehicle for which the coupons are issued. It is a legal obligation to return immediately to the office of issue all unused coupons when they cease to be valid, when the purpose for which they were issued ceases to apply, or when the vehicle in respect of which they have been issued ceases to be licensed.

It is an offence to transfer coupons to any other person except that when a vehicle changes ownership the basic ration issued by a Post Office or local taxation officer for that vehicle may be transferred to the new owner. It is therefore an offence to deposit coupons with a dealer or garage whether against the future supply of motor fuel or otherwise. Any person authorised by the Secretary for Petroleum, or a chief officer of police, may enter or inspect any premises used in connection with the business of a supplier or a producer of motor fuel, to secure compliance with the order.

* * * * *

ROYAL COLLEGE OF VETERINARY SURGEONS

Animal Management Examination

List of Successful Candidates

(*Continued from Page* 421)

Dublin:—

*Carmichael, R.	McBride, P. S.
Coyle, M. J.	McCarroll, J. J.
Cranley, John	*McCullough, M. R. S.
Fitzgibbon, J. P.	*McGarry, J. J.
Foley, J.	McNally, G. K.
*Geaney, D.	McNelis, N. J.
Halpin, F. B.	*Paul, C. B.
Jones, A. R.	Pollock, A.
Lyness, T.	Shinnors, G. A.

*Denotes Credit.

* * * * *

MINISTER'S BROADCAST TO FARMERS

Mr. R. S. Hudson, Minister of Agriculture, broadcasting to farmers, on Sunday last, on the Government's programme for agriculture, dealt with the problems of labour, feeding stuffs and prices. The following are points from his speech.

There must be a drastic cut in imported feeding stuffs for animals. You will have to rely much more on what you can grow yourself.

The most important thing is to maintain our milk supply. Our dairy herds will have first call. Be as sparing as possible this summer with oilcake, so that we can start building up a winter reserve.

We must try to keep up the numbers of our beef cattle and sheep, but we cannot afford to feed beasts to a high finish. Don't, if you can avoid it, use up now any feeding stuffs on your farm. You will need them badly in the winter.

Grow roots and catch crops, particularly on land you were thinking of reserving for summer fallowing. Make the best hay you can. Consider making some silage.

Supplies of feeding stuffs for pigs and poultry will be very limited indeed. Breeding and hatching should be curtailed at once, and pig and poultry farmers who depend on purchased feeding stuffs should begin at once to reduce their stocks. They may have to cut them down to one-third by the middle of the autumn. Those who grow a substantial proportion of their own feeding stuffs may be able to carry on with a less drastic reduction. Please reduce stocks in an orderly and gradual manner so that the market won't be flooded.

Since September agriculture has lost anything up to 70,000 men. Mr. Bevin is going to issue an order prohibiting employers in any other industry taking on men now in agriculture. Anyone with agricultural experience now working in another industry will have to return to agriculture when he falls out of work.

Farmers and workers have agreed to recommend the Central Wages Board to fix a new minimum wage of 48s a week.

Much the best and quickest way to get increased food production is to see that the farmer gets a decent price, and knows what he is going to get. We are busy working out the actual new prices. They will take account of your additional costs.

I am going to ask the county war executive committees to find out how production could be increased still further on every farm. I hope to announce very soon details of a new scheme of grants for tile drainage.

Considerable areas of derelict or semi-derelict land which are capable of being brought into cultivation for the 1941 harvest must be cultivated, by compulsion if necessary.

I want farmers to train women on their own farms for permanent work. I am appealing for 5,000 new recruits at once and also for women for seasonal work this summer. Farmers must help by finding billets and training.

Executive and district committees will have increased staff released by the closing of farm institutes and colleges. Get on with all your might with the ploughing campaign.

* * * * *

MINISTRY OF AGRICULTURE NEWS SERVICE

Farmers Will Make More Silage.—There is every indication that farmers are making more silage. Many farms that have never made any are about to produce it, in portable silos, in concrete-lined pits and in clamps and stacks. Young grass ensiled in the portable apparatus, which is not expensive to buy, is most likely to emerge a product capable of saving concentrates. Silage made by the other methods is less certain but also of high feeding value.

By using molasses diluted with water to control fermentation, silage making is now simple and costs little. There is no shortage of molasses and arrangements have been made with the Ministry of Supply to reserve adequate quantities for farmers making silage. But it is desirable to use molasses economically and it has been decided that quantities in excess of one barrel (about 40 gallons) shall only be obtainable by permits issued by the appropriate Agricultural Executive Committee.

Any farmer, therefore, who needs more than 40 gallons of molasses should apply to his County War Agricultural Executive Committee stating the amount of silage he intends to make, the amount of molasses required and when he will need them.

. . . . .

Making the Most of Poultry Rations.—Economy in poultry feeding does not necessarily mean liquidating the birds with the large appetites. They may well produce more eggs per cwt. of meal than the smaller eaters, and this is the consideration that matters—the production of eggs in relation to the food consumed. A little extra care in filling dry mash hoppers will avoid much unnecessary waste. They should never be filled to the brim even if it does mean an extra visit or two during the week.

On free range there is a great deal to be said for the use of wet mash instead of dry. Dry mash hoppers, unless well designed and carefully placed, attract wild birds and vermin and high winds may blow away a good deal of food. Farmers who have changed from dry to wet mash report savings of 10 per cent. to 20 per cent. in the amounts of food used. Moreover wet mash is believed by many poultry keepers to be better for the health of the stock; certainly it does not encourage them to cluster at the hopper and neglect the surrounding grassland.

Good grass is an asset to any poultry farmer, but, unless kept short by grazing or cutting, it soon becomes coarse and useless. If the first meal of the day is kept down to not more than ½ oz. of grain per bird, they will soon clear it up and turn their beneficial attention to the grass.

The sows have been in good condition throughout and litters of 9, 9, 8 and 8 have been reared averaging 35 to 40 lb. at eight weeks.

. . . . .

Kale v. Swedes.—Much of the newly ploughed land is going into marrow stem kale this season and it is worth mentioning some of the advantages of this crop. It needs no singling and can be transplanted, without risk of "bolting," either over a whole field or into gaps in swede, sugar-beet and mangold crops. When the land is clean, kale can safely be broadcast, thus saving labour. It can be fed to cattle, sheep and (before the stems are woody) to pigs. It is valuable in counteracting anaemia in housed pigs.

When grown in suitable soil, kale produces more food per acre than swedes and is more resistant to frost. Even in such a winter as the last, thousand head kale remained in the field unharmed and marrow stem kale resisted the frost better than swedes. Both kale and swedes have long periods of feeding, *e.g.*, kale, August to January or February; swedes, November to May. Swedes in clamp are available at a very difficult time, namely, in April.

* * * * *

TUBERCULOSIS EPIDEMIC OF BOVINE ORIGIN

"For various reasons tuberculosis of bovine origin either is or appears to be sporadic in its incidence," stated the *British Medical Journal* recently. "Outbreaks of multiple cases at about the same time in the same neighbourhood are so uncommon that when they do happen they attract unusual attention. A particularly interesting outbreak of this type is recorded by Gnosspelius* in Sweden. In July, 1938, cases of erythema nodosum and of cervical adenitis began to occur in different parts of Gothenburg. By a fortunate accident it was learnt that the affected children were receiving raw milk from the same source, and examination of the herd, which was owned by a producer-retailer, showed it to be heavily infected with tuberculosis. A complete list was obtained of the 136 persons in the 33 families to whom this milk was delivered. Tuberculin reactions were carried out on 100 of them, and 98 were found to react positively; the two negative reactors were breast-fed infants. From inquiry it seemed probable that at least 23 of the 98 reactors had been infected from the milk; two of them had erythema nodosum and seven had enlarged cervical glands. The bovine type of bacillus was demonstrated in two patients who were examined. What adds to the interest of the story is that at about the same time as the outbreak in Gothenburg cases of non-pulmonary tuberculosis were cropping up in a summer home in the country to which weakly children were sent. The home contained 42 children, aged 6 to 13 years, 15 of whom were tuberculin-positive on arrival. After being in the home for about five weeks a large number of the children became ill and febrile. Headache, pains in the neck, and vague abdominal symptoms were common. Sometimes the fever disappeared in a day or two, and usually it was over within a week. The whole outbreak looked like some relatively unimportant alimentary infection. A week or two later, however, after the home had broken up, there were three cases of erythema nodosum among children who had returned to town. Examination of the other children who had been ill showed later that there was one other case of erythema nodosum and four of cervical adenitis. The cases were confined to children who had been tuberculin-negative on entering the home, all of whom had now become positive reactors. There was little doubt, therefore, that the children had been infected with tuberculosis in the home, and this was confirmed when it was found that the milk supplied to the home came from the same source as that which had been responsible for the outbreak in Gothenburg itself. It is not often that milk-borne tuberculosis can be traced to its origin so clearly. Occurrences of this sort should, happily, become fewer in Sweden, since compulsory pasteurisation of all milk in towns, with the exception of milk from non-reacting herds, came into force on July 1st, 1939. In country districts, however, the law does not hold, and there may still be a danger of town-bred children, who have been used to receiving a safe milk supply, becoming infected when on holiday in the country. The protection of such children is a problem that not only confronts Sweden but is of special interest in Great Britain, where large numbers of children in the reception areas are now being exposed for the first time to the dangers of infected raw milk."

* * * * *

Supplies of imported feeding stuffs have been cut off from Holland, Belgium and Denmark. In Holland, about 300,000 head of dairy stock—roughly 12 per cent. of the total—were drowned when the sluicegates were opened to form a barrier against the aggressor. In Germany itself, foot-and-mouth disease has spread to an alarming extent, and control measures, involving the use of vaccine and the isolation of herds in "rings," have been abandoned.

* * * * *

The issue of driving licence "reminders" by local authorities is to be discontinued.

*Acta paediatr., Stockh., 1939, 26, 194.

CORRESPONDENCE

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

* * * * *

The "Reservation" of the Profession

To the Editor of the Veterinary Record

Sir,—Permit me to endorse the sentiments expressed by Mr. Beckett in his letter of May 6th. The only fault with those sentiments is that they were not expressed forcibly enough to reveal the indignation he and every other loyal and duty-conscious member of the profession must feel at the attitude adopted by the executive officers of the N.V.M.A. in adopting and passing a resolution demanding that the profession should remain a totally reserved occupation.

In the name of common sense can any of those who were responsible for the adoption of such a craven resolution explain their attitude at a time when we are menaced by the most efficient and ruthless military organisation the world has ever experienced? Ours is the only occupation which has decreased in national service output since hostilities commenced. Do those who are responsible for the creation of that ephemeral institution, designated as Animal A.R.P., rest complacently in a fool's paradise and imagine that the nation does not demand from us an equal sacrifice with all other citizens in its defence?

For Heaven's sake, before it is too late, let the men and women of our profession rise up and demand that reservation, which for us is nothing more than a shirker's cloak, be completely removed, thereby enabling those who have the courage, heart, and spirit to offer themselves for any service in our country's defence.

Yours faithfully,

L. C. Maguire.

Stow-on-the-Wold,
Glos.
May 22nd, 1940.

[Our readers should note that the policy adopted in regard to the reservation of members of the profession from military service, to which certain of our correspondents have taken exception, so far from being the exclusive responsibility of the National Veterinary Medical Association, is dictated by circumstances to which consideration, solely from the point of view of the welfare of the community, has jointly been given by representatives of the Army Veterinary Service, the Ministry of Agriculture, the Royal College of Veterinary Surgeons and the N.V.M.A.—*Editor.*]

. . .

To the Editor of the Veterinary Record

Sir,—May I, as one of the younger members of the profession, heartily endorse the terms of both of Mr. Beckett's letters.

Owing to the depressed state of affairs now existing many of us are finding it increasingly difficult to obtain employment in the profession, with the result that we find ourselves in the invidious position of being for much of the time "passengers." In peace, such a state of affairs would be a reproach to the profession; in war the wastage of man power it causes is a crime against the nation.

I cannot honestly feel that the health of food animals would suffer unduly if the very much "part-time" attention that they receive from the "under 25's" was withdrawn and these men allowed to serve in H.M. Forces.

Yours faithfully,
P. H. J. Keast.

38, Upper Tooting Park,
London, S.W.17.
June 2nd, 1940.

. . . . .

To the Editor of the Veterinary Record

Sir,—With the mobilisation of our country's manpower and resources in these critical days, it appears certain that something more than "the individual conscience" must guide and discipline us. The present Government is very representative and should be capable of judging what occupations should be reserved. I cannot follow the last paragraph in Mr. Beckett's letter of May 26th: it reads as if Mr. Beckett would let his personal opinion override the country's requirements.

I have always considered that a veterinary surgeon has a twenty-four hour duty and if further duty is to be given under the National A.R.P. for Animals Committee, I cannot see how he will be enabled in a one-man practice, to be certain of giving further hours of service, except by neglecting the obvious duty of following his reserved occupation.

I believe our profession to be considerably understaffed, and that there is a deplorable shortage of experienced and capable younger graduates for agriculture practice, lacking the valuable practice instruction that Mr. Beckett could so ably give, and further, that the average country practitioner is overworked. Does Mr. Beckett mean that he will withdraw his valuable instruction of the next generation for the duration, in order that their conscience will take them to be "blooded" and ready to accept his charitable pupilage subsequently, in spite of the country's need as expressed by the Government?

I do not think that there is any doubt that considerable numbers of quacks and patent cattle medicine vendors still make a fat living at the farmers' expense and to the detriment of this country, and their work is facilitated by a shortage of experienced and capable veterinary surgeons.

If this country is "well and truly bombed," I think we shall all find plenty to do professionally, and no doubt Mr. Beckett will assist with first aid to accredited and attested herds and perhaps to the ruins of "homo sapiens"; in the meantime I beg him to hand on his art to earnest youth.

I hope all young members of the profession will do the job under their nose until further instructions from our enlightened Government.

I am,
Yours faithfully,
B. G. Catmur.

The Vineyard,
Abingdon,
Berks.
June 3rd, 1940.

. . . . .

To the Editor of the Veterinary Record

Sir,—With reference to Mr. Beckett's letter in the *Veterinary Record* of June 1st, no doubt it is his own patriotism that has forced him into print. He states that he is surprised that no young members of the profession have suggested that the reservation be altered. It would appear that unless young members proclaim their willingness to serve their country by writing public letters to the *Veterinary Record* people such as Mr. Beckett consider that we have no patriotism. I should like to inform him that a large number have made every endeavour to join, not only the R.A.V.C. but any of His Majesty's Forces, by writing and also by personal enquiry at recruiting offices. Again, instead of writing letters to the *Veterinary Record* many have written direct to the proper authorities to change the reservation, but with no result.

In conclusion, I hope that present veterinary students will not be unduly perturbed by Mr. Beckett's intimation that they can no longer enjoy the benefits that he has bestowed upon them every vacation, free of charge.

Yours faithfully,
G. B. B. Howat.

12, Landguard Road,
Southampton.
June 3rd, 1940.

. . . . .

To the Editor of the Veterinary Record

Sir,—In times like these the only justification for the reservation of any occupation is, that the State is prepared to, and will, make the immediate and fullest possible use of its services.

It is very unlikely that the Army Veterinary Services will make even a minor demand on our profession, and other departments have not increased their veterinary staff.

A good number of our members, unable to get a living in civil life, are more than anxious to serve, but they are refused directly the nature of their occupation is revealed.

If conscription for everyone, *irrespective of his occupation,* up to fifty, had been introduced on the outbreak of war, each case being judged on its merits, not only would our reserves in trained man power be greater, but our economic system would not have been impaired by the high wages paid out to camp and munition workers, for all would have been paid at army rates.

Yours faithfully,
J. F. D. Tutt.

"Rothiemurchus,"
St. Cross,
Winchester.

. . . . .

To the Editor of the Veterinary Record

Sir,—While not wishing to disparage in any way the previous opinions which have been expressed on this subject, I thnk it would be advisable to review the facts as they are presented.

1. The food animals are of prime importance during the present emergency. If an extensive outbreak of foot-and-mouth disease were to occur, all available veterinary surgeons would be required, and this might necessitate demobilisation of veterinary personnel.

2. The relatively small number of veterinary surgeons. The total number of veterinary surgeons on the register is 3,722; of those resident in this country only a small proportion could be conscripted, and their subsequent part in the national effort would be insignificant.

In conclusion a remark published in this journal states the author to believe that his country is more important than personal interests; I venture to assert that it is this reason that has caused the youth of the veterinary profession to refrain from objecting to the schedule, against their personal inclinations.

Yours faithfully,

F. P. Lawton.

Warrington.

. . . . . .

To the Editor of the Veterinary Record

Sir,—Please allow me to thank Mr. Beckett for his letter of May 26th, as his words, "Farmers cannot be forced to call in a veterinary surgeon," expose the weakness of the accepted position with regard to farm livestock as simply and thoroughly as I could wish.

Even if the question is one of politics or policy surely no reasonable objection can be raised to a proposal that, *in the interest of the welfare of the country,* controllable losses in food animals should be reduced whether or not the owners involved ask for assistance in the matter, and only veterinary surgeons are fully equipped for the task.

From information available in official quarters there would be little difficulty in indicating farms and areas where the output of food animals and animal products was below par and appropriate veterinary action could follow. Such an arrangement would be a relatively minor extension of the emergency activities aiming at full mobilisation of our agricultural resources.

In case of misunderstanding arising I should like to make clear the fact that the opinions I have expressed have been professional and not personal.

Yours faithfully,

John C. Grant.

The North of Scotland College of Agriculture,
Veterinary Department,
Marischal College, Aberdeen.
June 1st, 1940.

"DUTCH VET."

To the Editor of the Veterinary Record

Sir,—In a recent issue you published a review of a novel with the above title, and I heartily agreed with the concluding remarks of your reviewer. I read a lengthy review of the novel in *The Times,* and I said to myself, "here is evidently a fine novel spoilt at its christening."

It is all very well, however, for us to deprecate the use of the vulgarism "vet.," especially by lay people, while we fail to sweep away the musty, mouldy and vulgar cobwebs from our own Augean stable. The Editor of an agricultural paper the other day, in drawing his readers' attention to an article by a veterinary surgeon, remarked "Here a vet. looks at animal health." etc., while in the same journal a person answering questions in the veterinary columns signs himself "Vet."—I presume this individual is a qualified man.

But that is not all. One comes across this abbreviation galore in our professional journals too, *i.e.,* "*Vet. Bull.,*" "*Vet. Med.,*" "*Vet. Rec.,*" "*Rec. Méd. vét.,*" etc. Why not use the first and last letters if the word veterinary must be abbreviated, thus, *Vy.,* and scrap "vet." altogether? If, when using the title "Veterinary Surgeon." it has to be curtailed for some reason or another, why not "V. Surgeon" or simply "V.S."?

Truly yours,

W. M. Scott.

Fryern Hall,
Bridgwater,
Somerset.
May 26th, 1940.

[Wherever the term "vet." is used in this journal it is as an abbreviation in the sense employed in the lists of references in the bibliography of scientific papers which has been established by authority.—*Editor.*]

DISEASES OF ANIMALS ACTS, 1894 to 1937, and AGRICULTURE ACT of 1937 (PART IV)

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 1st to 15th May, 1940	20	21	—	—	1	1	4	162	124
Corresponding period in									
1939	29	29	—	—	1	3	4	126	70
1938	37	50	3	437	1	2	6	40	20
1937	31	34	—	—	4	5	3	51	43
Total 1st January to 15th May 1940	234	254	18	2,548	12	26	109	1,458	810
Corresponding period in									
1939	367	391	29	4,357	26	55	146	618	375
1938	393	425	151	19,758	38	61	94	180	117
1937	299	336	3	262	72	108	114	449	272

Note.—The figures for the current year are approximate only. **§ Excluding outbreaks in Army Horses.**

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DOSE (for dogs). In acute cases, half teaspoonful to one tablespoonful, according to size and breed, every two hours; later reduced to twice daily.

PRICE **1/6** per lb. Winchesters **1/4** per lb.

CHEVALIOD

A safe and reliable Ointment containing Iodine. Non-irritating and non-desquamating. Excellent for the treatment of Glandular Swellings and relief of pain.

5/6 per lb. 7 lbs. **5/-** per lb.

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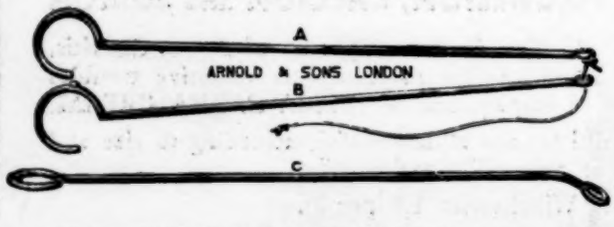

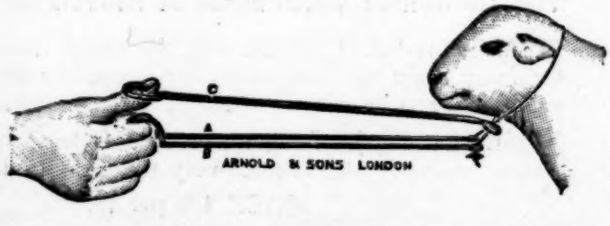

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